Claims

What is claimed is:

1.   A system for facilitating communication between entities, comprising:

one or more communication modalities that respectively provide for communication between at least two entities, and

a communication manager that analyzes a first communication data set associated with a first entity and a second communication data set associated with a second entity, the communication manager identifying a subset of the one or more communication modalities based at least in part on analysis of the first and second communication data sets and the communication manager establishing a communication between the entities *via* at least one modality of the subset.

2.   The system of claim 1, wherein the one or more communication modalities comprise at least one of: telephone modalities, facsimile modalities, computer modalities, paging modalities and personal modalities.

3.   The system of claim 2, wherein the telephone modalities comprise at least one of: POTS telephony, cellular telephony, satellite telephony and Internet telephony.

4.   The system of claim 2, wherein the computer modalities comprise at least one of: email, collaborative editing, instant messaging, network meetings, calendaring and home networking devices.

5.   The system of claim 2, wherein the personal modalities comprise at least one of: videoconferencing, messengering and face-to-face meeting.

6.   The system of claim 1, wherein establishing a communication includes at least one of scheduling one or more communications, calendaring one or more communications, displaying information concerning one or more possible

communication modalities available for communication between the entities and initiating one or more communications.

7.　　The system of claim 6, wherein the first communication data set comprises a set of contactor context data and a set of contactor preference data.

8.　　The system of claim 7, wherein the second communication data set comprises a set of contactee context data and a set of contactee preference data.

9.　　The system of claim 8, wherein the communication manager comprises:

　　　　a preference resolver adapted to analyze the set of contactee preference data and the set of contactor preference data and produces a resolved preference data;

　　　　a context analyzer adapted to analyze the set of contactee context data and the set of contactor context data and produce an analyzed context data;

　　　　a channel analyzer adapted to analyze the possible communication channels between a contactor and a contactee and produce a communication channel data; and

　　　　a communication establisher adapted to establish a communication between the contactor and the contactee based, at least in part, on the resolved preference data, the analyzed context data, entity selection data and the communication channel data.

10.　　The system of claim 9, wherein the set of contactee context data comprises contactee hardware data, contactee software data and contactee observed data.

11.　　The system of claim 10, wherein the set of contactor context data comprises contactor hardware data, contactor software data and contactor observed data.

12.   The system of claim 11, wherein the contactee hardware data comprises at least one of capacity data, bandwidth data, availability data, status data, cost data, revision data and hardware metadata.

13.   The system of claim 12, wherein the contactee software data comprises at least one of capacity data, version data, cost data and capability data.

14.   The system of claim 13, wherein the contactee observed data comprises at least one of time of day data, current activity data, current task data, calendar data, location data, contactor to contactee history data, attentional status data, contactor class data, environment data and communication needs data.

15.   The system of claim 14, wherein the contactee preference data comprises at least one of contactee preference hardware data, contactee preference software data, contactee preference time of day data, contactee preference calendar data, contactee preference contactor priority list data and contactee preference special needs data.

16.   The system of claim 11, wherein the contactor hardware data comprises at least one of capacity data, bandwidth data, availability data, status data, cost data, revision data and hardware metadata.

17.   The system of claim 16, wherein the contactor software data comprises at least one of capacity data, version data, cost data and capability data.

18.   The system of claim 17, wherein the contactor observed data comprises at least one of time of day data, current activity data, current task data, calendar data, location data, contactor to contactee history data, attentional status data, contactee class data, environment data and communication needs data.

19.   The system of claim 18, wherein the contactor preference data comprises at least one of contactor preference hardware data, contactor preference software data, contactor preference time of day data, contactor preference calendar data and contactor preference special needs data.

20.   The system of claim 9, wherein the communication manager is further operable to perform at least one of the preference resolver inferring probabilities for unspecified preferences, the context analyzer is operable to infer probabilities for context data and the channel analyzer is operable to infer probabilities for channel data.

21.   The system of claim 1, wherein identifying a communication modality comprises at least one of reasoning under uncertainty and deterministic processing.

22.   A method for identifying and establishing one or more communications between one or more communicating parties, comprising:
       determining one or more expected utilities associated with a communication between the communicating parties based, at least in part, on contactor data, contactee data and communication modality data; and
       establishing the communication.

23.   The method of claim 22 wherein the contactor data comprises at least one of: contactor situation data and contactor preference data.

24.   The method of claim 23, wherein the contactor situation data comprises at least one of: contactor application data, contactor user data and contactor capability data.

25.   The method of claim 24, wherein the contactor preference data comprises at least one of: time data, location data, task data, goal data and communication needs data.

26.   The method of claim 25, wherein the contactee data comprises at least one of: contactee situation data and contactee preference data.

27.   The method of claim 26, wherein the contactee situation data comprises at least one of: contactee application data, contactee user data and contactee capability data.

28.   The method of claim 27, wherein the contactee preference data comprises at least one of: time data, location data, task data, goal data and communication needs data.

29.   The method of claim 28, wherein determining the one or more expected utilities comprises:

analyzing at least one of the contactor data and the contactee data to determine one or more relationships between at least one of contactee preferences, contactor preferences, contactor communication needs, contactee communication goals, contactee capabilities and contactor capabilities;

selecting one or more rules based, at least in part, on the relationships; and

applying one or more rules to determine the expected utilities based, at least in part, on the relationships.

30.   The method of claim 29, the contactor data comprising:

deterministic data associated with a current state of the contactor; and

prediction data associated with future possible states of the contactor.

31.   The method of claim 30, the contactee data comprising:

deterministic data associated with a current state of the contactee; and

prediction data associated with future possible states of the contactee.

32. The method of claim 28, wherein determining the one or more expected utilities comprises:

analyzing the contactee data to determine one or more missing data values;

selectively inferring one or more missing contactee context data elements and/or one or more missing contactee situation data elements to produce one or more inferences;

analyzing the one or more inferences to determine one or more relationships between at least one of the inferences, contactor preferences, contactor communication needs and contactor capabilities; and

applying one or more inference formulae to maximize the expected utility of the communication between the communicating parties.

33. The method of claim 32 where the inference formulae are decision-theoretic formulae.

34. The method of claim 32, the contactor data comprising:

deterministic data associated with a current state of the contactor; and

prediction data associated with future possible states of the contactor.

35. The method of claim 34, the contactee data comprising:

deterministic data associated with a current state of the contactee; and

prediction data associated with future possible states of the contactee.

36.   The method of claim 29 wherein establishing the communication comprises:

presenting information concerning the communication to one or more communicating parties; and

performing at least one of scheduling, calendaring and initiating one or more communications between the communicating parties based, at least in part, on one or more responses to the information presented concerning the communication.

37.   The method of claim 35 wherein establishing the communication comprises:

presenting information concerning the communication to one or more communicating parties; and

performing at least one of scheduling, calendaring and initiating one or more communications between the communicating parties based, at least in part, on a response to the information presented concerning the communication.

38.   A method for identifying an optimal communication between one or more communicating parties, comprising:

determining one or more current expected utilities associated with a communication between the communicating parties based, at least in part, on current contactor data, current contactee data and current communication modality data, where the current contactee data comprises current state data and the current contactor data comprises current state data;

determining one or more predicted expected utilities associated with a communication between the communicating parties based, at least in part, on predicted contactor data, predicted contactee data and predicted communication

modality data, where the predicted contactee data comprises predicted state data and the predicted contactor data comprises predicted state data;

comparing one or more current expected utilities to one or more predicted expected utilities; and

ranking the current expected utilities with the predicted expedited utilities, where the ranking of the predicted expected utilities is weighted by one or more costs associated with delaying the communication to a point in time associated with the predicted expected utility.

39.   A system for optimizing one or more contacts between one or more parties, comprising:

means for determining one or more expected utilities associated with a contact between the parties based, at least in part, on data associated with one or more contactors, data associated with one or more contactees and data associated with one or more communication channels; and

means for establishing the communication.

40.   The system of claim 39, comprising:

means for applying one or more inference formulae operable to infer probabilities associated with one or more pieces of data associated with a contactor, one or more pieces of data associated with a contactee and one or more pieces of data associated with a communication channel.

41.   The system of claim 40 where the inference formulae are decision-theoretic formulae.

42.   A computer readable medium storing computer executable components for a system that facilitates communication between entities, comprising:

an identifying component that identifies a plurality of communication modalities that respectively provide for communication between at least two entities, and

an analyzing component that analyzes a first communication data set associated with a first entity and a second communication data set associated with a second entity, the analyzing component identifying one or more communication modalities of the plurality of modalities based at least in part on analysis of the first and second communication data sets and the analyzing component establishing a communication between the entities.

43. A computer readable medium containing computer executable instructions for performing a process for identifying and establishing one or more communications between one or more communicating parties, the process comprising:

determining one or more expected utilities associated with a communication between the communicating parties based, at least in part, on contactor data, contactee data and communication modality data; and

establishing the communication.